Rec'd POT/PTO 2 0 OCT 2004

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau





(43) International Publication Date 6 November 2003 (06.11.2003)

PCT

(10) International Publication Number WO 03/092163 A3

(51) International Patent Classification7:

. .

- H03M 1/08
- (21) International Application Number: PCT/IB03/01010
- (22) International Filing Date: 19 March 2003 (19.03.2003)

English

(26) Publication Language:

(25) Filing Language:

English

(30) Priority Data: 02076643.2

25 April 2002 (25.04.2002) EP

- (71) Applicant (for all designated States except US): KONIN-KLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): WESTRA, Jan, R. [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).
- (74) Agent: DUIJVESTIJN, Adrianus, J.; Philips Intellectual Property & Standards, Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

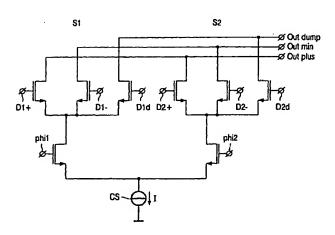
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA. CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, ET, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report: 24 December 2003

[Continued on next page]

(54) Title: DIGITAL TO ANALOG CONVERSION



(57) Abstract: A unit cell for a digital to analog conversion circuit comprising; a current source (CS); a first data switch (S1) coupled to the current source (CS); a second data switch (S2) coupled to the current source (CS); a first phase switch (Phi1) coupled between the current source (CS) and the first data switch (S1); a second phase switch (Phi2) coupled between the current source (CS) and the second data switch (S2); a controller arranged to switch between the first (Phi1) and second (Phi2) phase switches in a Break Before Make alternating sequence, and to switch the first (S1) and second (S2) data switches in a Make Before Break sequence. A digital to analog convector circuit constructed using unit cells according to the invention is more area and power efficient than the previously known circuit because it uses only one current source, yet it succeeds in preventing short-circuit error currents between the outputs and solves the problems caused by pulse asymmetry and the influence of switch-charge injection, and provides more linear and better quality output signals.

VO 03/092163 A3